

CST 363 – Lab 19 Web App SQL (Group Project)

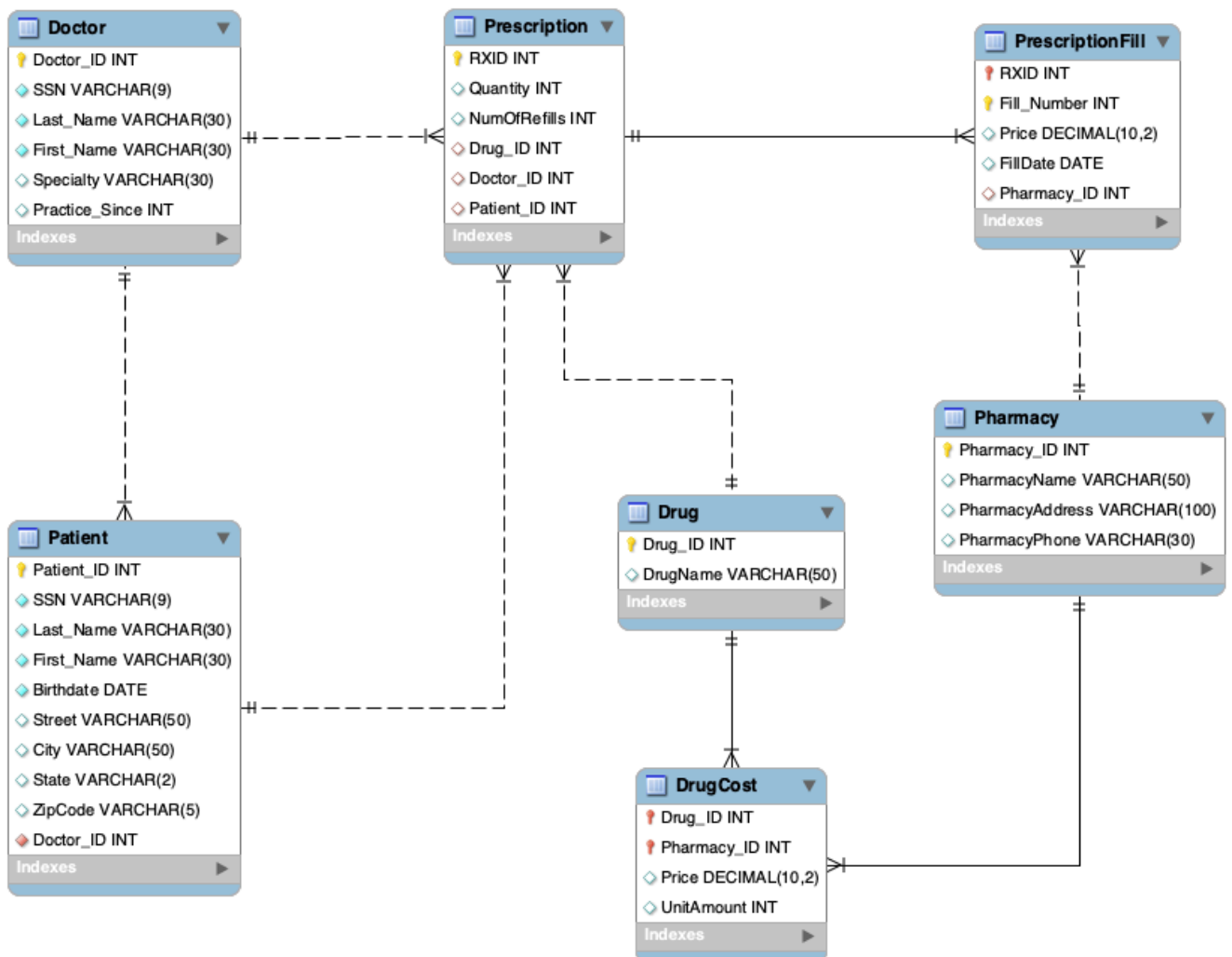
Nicole Al-Sabah

Deborah Shaw

Date: 2/12/2024

Introduction:

This database is designed for pharmacies to track patient prescriptions, storing information about doctors and patients. The system facilitates the tracking of prescriptions created by doctors for patients, with each refill of the prescription recorded by the PrescriptionFill entity. Each filled prescription includes the date the prescription is filled and the corresponding price. Additionally, the database is equipped with additional functionality to record and manage the pricing information of individual drugs across different pharmacies.



Description of each entity:

Doctor Entity:

An auto-generated ID serves as the primary key, accompanied by attributes such as the doctor's social security number, first and last name, specialty, and the year they commenced their first year of practice.

Doctor to Patient: Many-to-One Relationship

Many patients can have the same primary doctor, creating a many-to-one relationship between patients and doctors..

Patient Entity:

An auto-generated ID functions as the primary key, and attributes encompass the patient's social security number, first and last name, birth date, and address. A foreign key establishes a relationship with the doctor entity, as one doctor may have multiple patients.

Pharmacy Entity:

The primary key is an auto-generated ID, and the entity records the pharmacy's name, address, and phone number.

Drug Entity:

This entity features an auto-generated ID for drugs and includes a drug name as an attribute.

Prescription Entity:

An auto-generated RXID serves as the primary key, with quantity and the number of refills as attributes. Three foreign keys establish relationships with the drug entity, patient entity, and doctor entity. Notably, one drug may appear in multiple prescriptions, and a doctor can create multiple prescriptions for one patient.

DrugCost Entity:

This entity maintains records of drug prices, recognizing that different quantities of the same drug may have different prices. For instance, 10 tablets and 100 tablets of the same drug should have different prices. The entity includes attributes such as price and unit of drugs, and a compound primary key consists of Drug_ID and Pharmacy_ID, which are both foreign keys referencing the Drug and Pharmacy tables. This compound key ensures uniqueness for drug costs based on both drug and pharmacy.

PrescriptionFill Entity:

This entity keeps track of each fill or refill of the prescription. Each time a prescription is filled, this entity records pharmacy id, prescription RXID, fill number, price, and date at the time of the fill. PrescriptionFill has a compound primary key consisting of RXID and Fill_Number, with RXID being a foreign key referencing the Prescription table. The RXID uniquely identifies the prescription, and Fill_Number represents the sequential number of the fill for that prescription. This helps to uniquely identify each fill instance for a specific prescription.

-- Drop Database if Exists

DROP DATABASE IF EXISTS Prescription;

-- Create Database

CREATE DATABASE Prescription;

-- Use the Database

USE Prescription;

-- Doctor table

```
CREATE TABLE Doctor (  
    ID INT PRIMARY KEY AUTO_INCREMENT,  
    SSN VARCHAR(9) NOT NULL UNIQUE,  
    Last_Name VARCHAR(30) NOT NULL,  
    First_Name VARCHAR(30) NOT NULL,  
    Specialty VARCHAR(30),  
    Practice_Since INT  
);
```

-- Patient table

```
CREATE TABLE Patient (  
    Patient_ID INT PRIMARY KEY AUTO_INCREMENT,  
    SSN VARCHAR(9) NOT NULL UNIQUE,  
    Last_Name VARCHAR(30) NOT NULL,  
    First_Name VARCHAR(30) NOT NULL,  
    Birthdate DATE NOT NULL,  
    Street VARCHAR(50),
```

```
City VARCHAR(50),  
State VARCHAR(2),  
ZipCode VARCHAR(5),  
Doctor_ID INT NOT NULL,  
FOREIGN KEY (Doctor_ID) REFERENCES Doctor(ID)  
);
```

-- Pharmacy table

```
CREATE TABLE Pharmacy (  
    Pharmacy_ID INT PRIMARY KEY AUTO_INCREMENT,  
    PharmacyName VARCHAR(50),  
    PharmacyAddress VARCHAR(100),  
    PharmacyPhone VARCHAR(30)  
);
```

-- Drug table

```
CREATE TABLE Drug (  
    Drug_ID INT PRIMARY KEY AUTO_INCREMENT,  
    DrugName VARCHAR(50)  
);
```

-- DrugCost table

```
CREATE TABLE DrugCost (  
    Drug_ID INT,  
    Pharmacy_ID INT,  
    Price DECIMAL(10, 2),  
    UnitAmount INT,
```

```
PRIMARY KEY (Drug_ID, Pharmacy_ID),  
FOREIGN KEY (Drug_ID) REFERENCES Drug(Drug_ID),  
FOREIGN KEY (Pharmacy_ID) REFERENCES Pharmacy(Pharmacy_ID)  
);
```

-- Prescription table

```
CREATE TABLE Prescription (  
    RXID INT PRIMARY KEY AUTO_INCREMENT,  
    Quantity INT,  
    NumOfRefills INT,  
    Drug_ID INT,  
    Doctor_ID INT,  
    Patient_ID INT,  
    FOREIGN KEY (Drug_ID) REFERENCES Drug(Drug_ID),  
    FOREIGN KEY (Doctor_ID) REFERENCES Doctor(ID),  
    FOREIGN KEY (Patient_ID) REFERENCES Patient(Patient_ID)  
);
```

-- PrescriptionFill table

```
CREATE TABLE PrescriptionFill (  
    RXID INT,  
    Fill_Number INT,  
    Price DECIMAL(10, 2),  
    FillDate DATE,  
    Pharmacy_ID INT,  
    PRIMARY KEY (RXID, Fill_Number),  
    FOREIGN KEY (RXID) REFERENCES Prescription(RXID),
```

```
FOREIGN KEY (Pharmacy_ID) REFERENCES Pharmacy(Pharmacy_ID)
);

-- Insert for Pharmacy table
INSERT INTO Pharmacy (PharmacyName, PharmacyAddress, PharmacyPhone)
VALUES ('CVS', '100 Main Ave. Los Angeles, CA 90293', '111-222-3333');

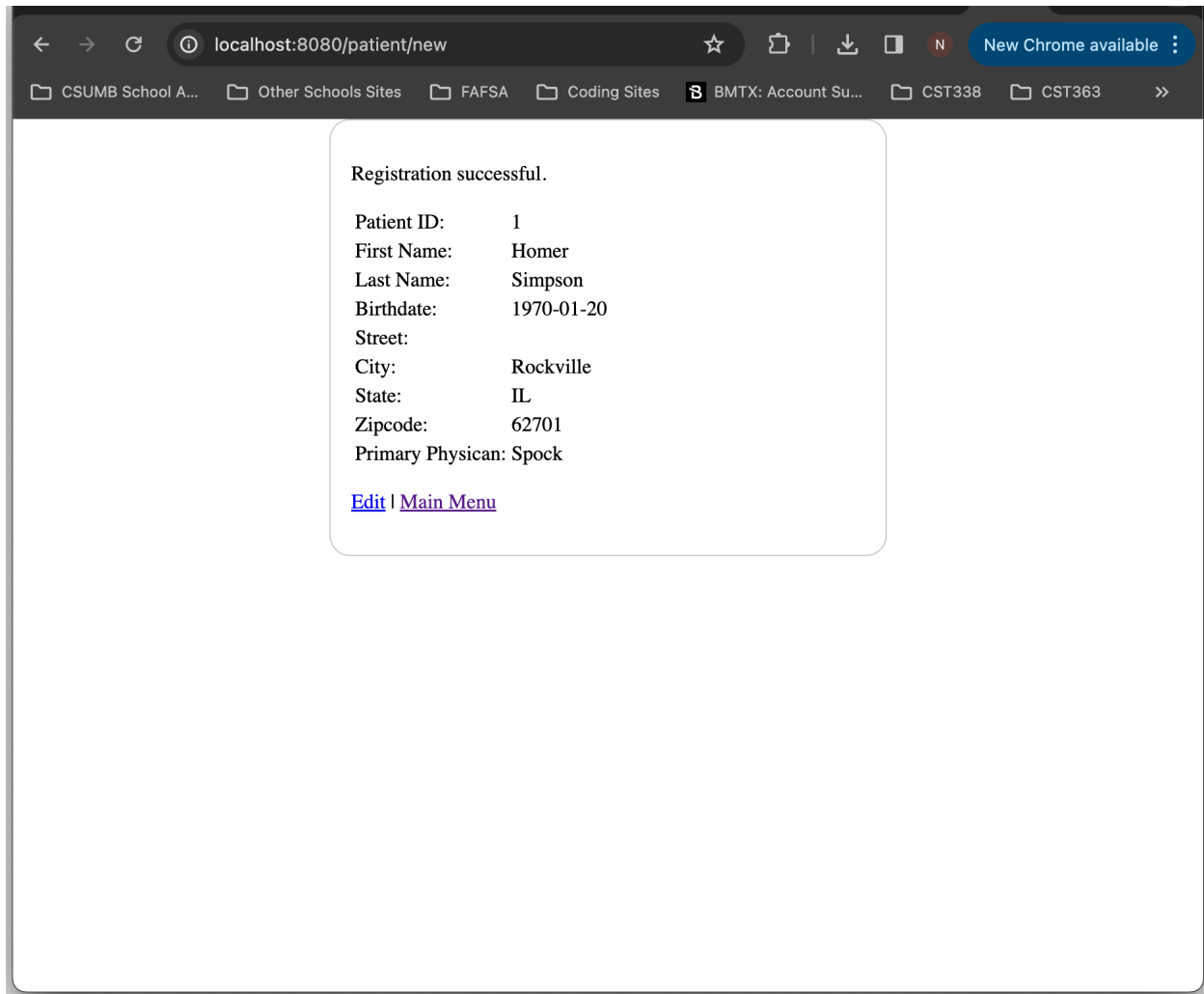
INSERT INTO Pharmacy (PharmacyName, PharmacyAddress, PharmacyPhone)
VALUES ('Rite Aid', '200 Sunset Ave. Los Angeles, CA 90026', '444-555-6666');

-- Insert for Drug table
INSERT INTO Drug (DrugName) VALUES ('loratadine');
INSERT INTO Drug (DrugName) VALUES ('lisinopril');

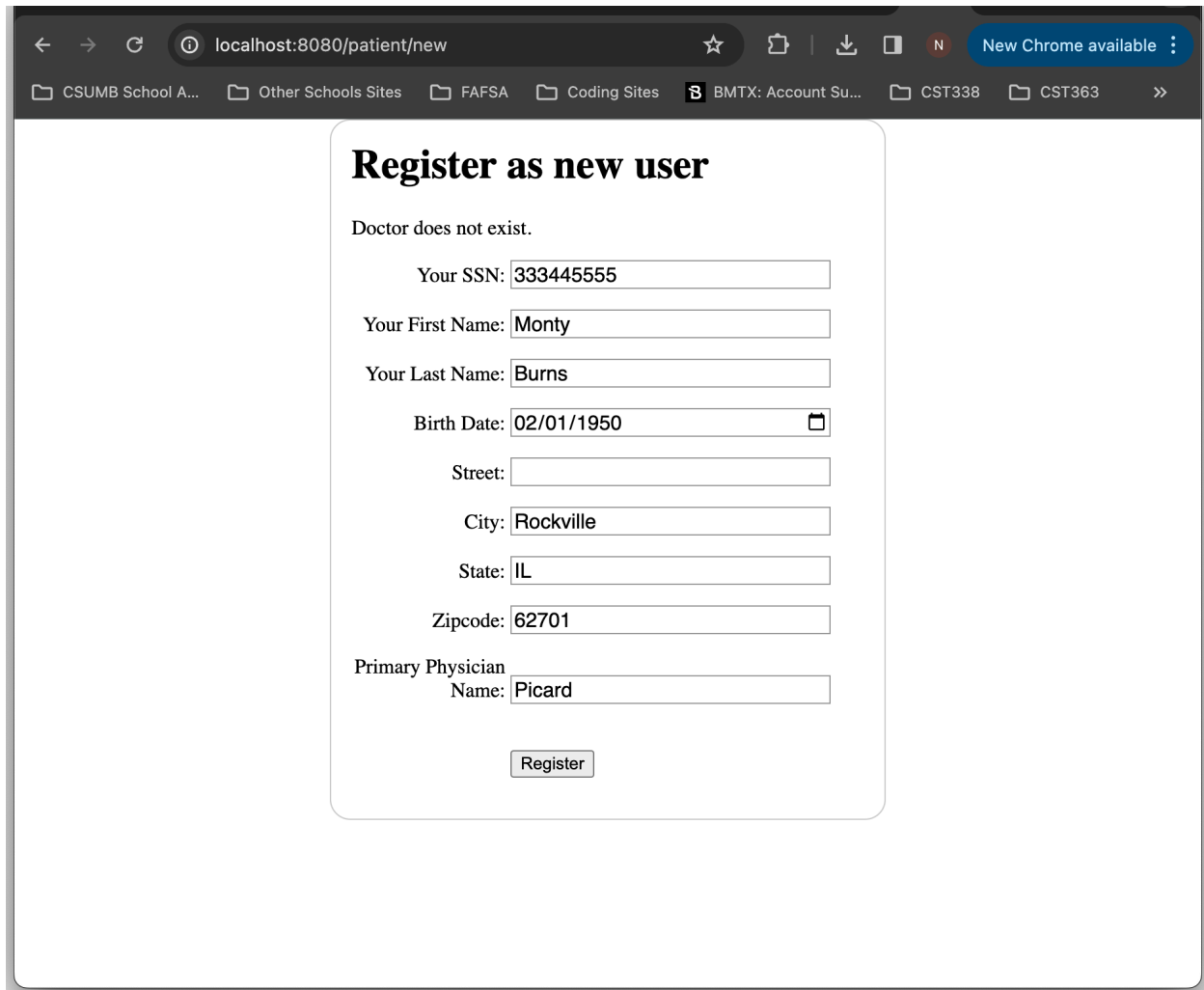
-- Insert for DrugCost table
INSERT INTO DrugCost (Drug_ID, Pharmacy_ID, Price, UnitAmount) VALUES (1, 1,
2.00, 1);

INSERT INTO DrugCost (Drug_ID, Pharmacy_ID, Price, UnitAmount) VALUES (2, 2,
5.00, 1);
```


- Register as a new patient with last name “Simpson”, city “Rockville”, zip code 62701 and a doctor with name “Spock”. Show a successful registration.



- Attempt to register as a new patient with last name “Burns” but with a doctor name that does not exist. Show a screenshot of the patient register form with the error message.



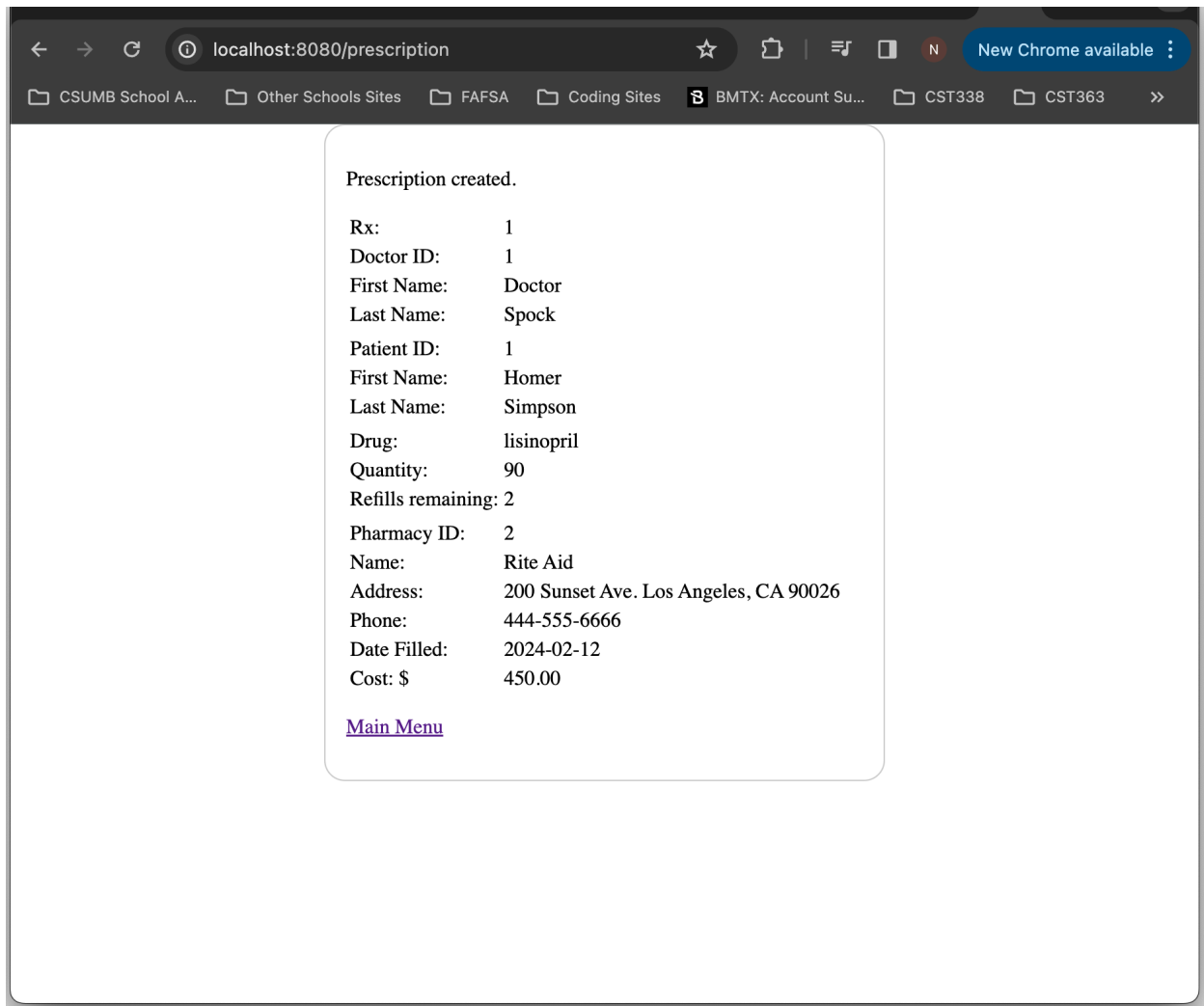
The screenshot shows a web browser window with the address bar displaying `localhost:8080/patient/new`. The browser's address bar includes navigation icons (back, forward, refresh) and a search icon. Below the address bar, there are several tabs: "CSUMB School A...", "Other Schools Sites", "FAFSA", "Coding Sites", "BMTX: Account Su...", "CST338", and "CST363". A blue notification bubble in the top right corner says "New Chrome available".

The main content area displays a registration form titled "Register as new user". The form contains the following fields and values:

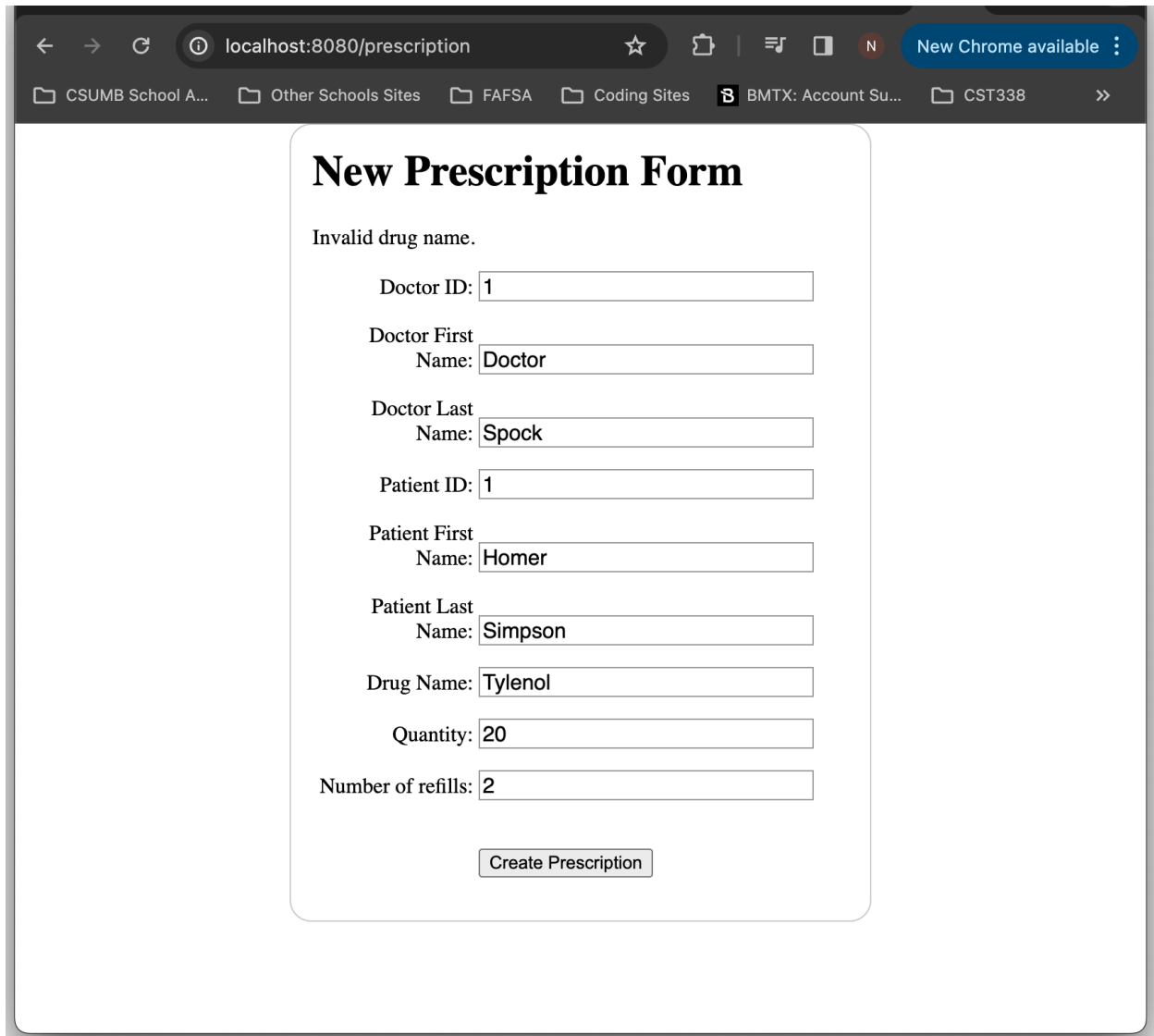
- Doctor does not exist. (Error message)
- Your SSN:
- Your First Name:
- Your Last Name:
- Birth Date: (with a calendar icon)
- Street:
- City:
- State:
- Zipcode:
- Primary Physician Name:

At the bottom of the form is a "Register" button.

- Create a prescription for the patient “Simpson” and doctor “Spock” for a drug “lisinopril” and quantity 90. Show the screen with the success message and prescription display.



- Attempt to create a prescription with an invalid drug name. Show a screen with the create prescription form and error message.



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/prescription'. The browser's address bar also shows a 'New Chrome available' notification. The browser's tabs include 'CSUMB School A...', 'Other Schools Sites', 'FAFSA', 'Coding Sites', 'BMTX: Account Su...', and 'CST338'. The main content area displays a 'New Prescription Form' with the following fields and values:

- Doctor ID: 1
- Doctor First Name: Doctor
- Doctor Last Name: Spock
- Patient ID: 1
- Patient First Name: Homer
- Patient Last Name: Simpson
- Drug Name: Tylenol
- Quantity: 20
- Number of refills: 2

An error message 'Invalid drug name.' is displayed above the 'Drug Name' field. The 'Drug Name' field is highlighted in red, indicating an error. A 'Create Prescription' button is located at the bottom of the form.

- Attempt to fill a prescription with an invalid pharmacy name.

The screenshot shows a web browser window with the address bar displaying `localhost:8080/prescription/fill`. The browser's tab bar includes several tabs: "CSUMB School A...", "Other Schools Sites", "FAFSA", "Coding Sites", "BMTX: Account Su...", and "CST338". A notification for "New Chrome available" is visible in the top right corner of the browser interface.

The main content area of the browser displays a form titled "Request Prescription to be filled." in a large, bold, black font. Below the title, the text "Pharmacy not found." is displayed. The form contains several input fields:

- An "Rx:" field with the value "1".
- A "Patient Last Name:" field with the value "Simpson".
- A "Pharmacy Name:" field with the value "Walgreens".
- A "Pharmacy Address:" field with the value "200 Main Way, Los Angeles CA 90".

At the bottom of the form, there is a button labeled "Request Fill for Prescription".

- Attempt to fill a prescription with an invalid rxid.

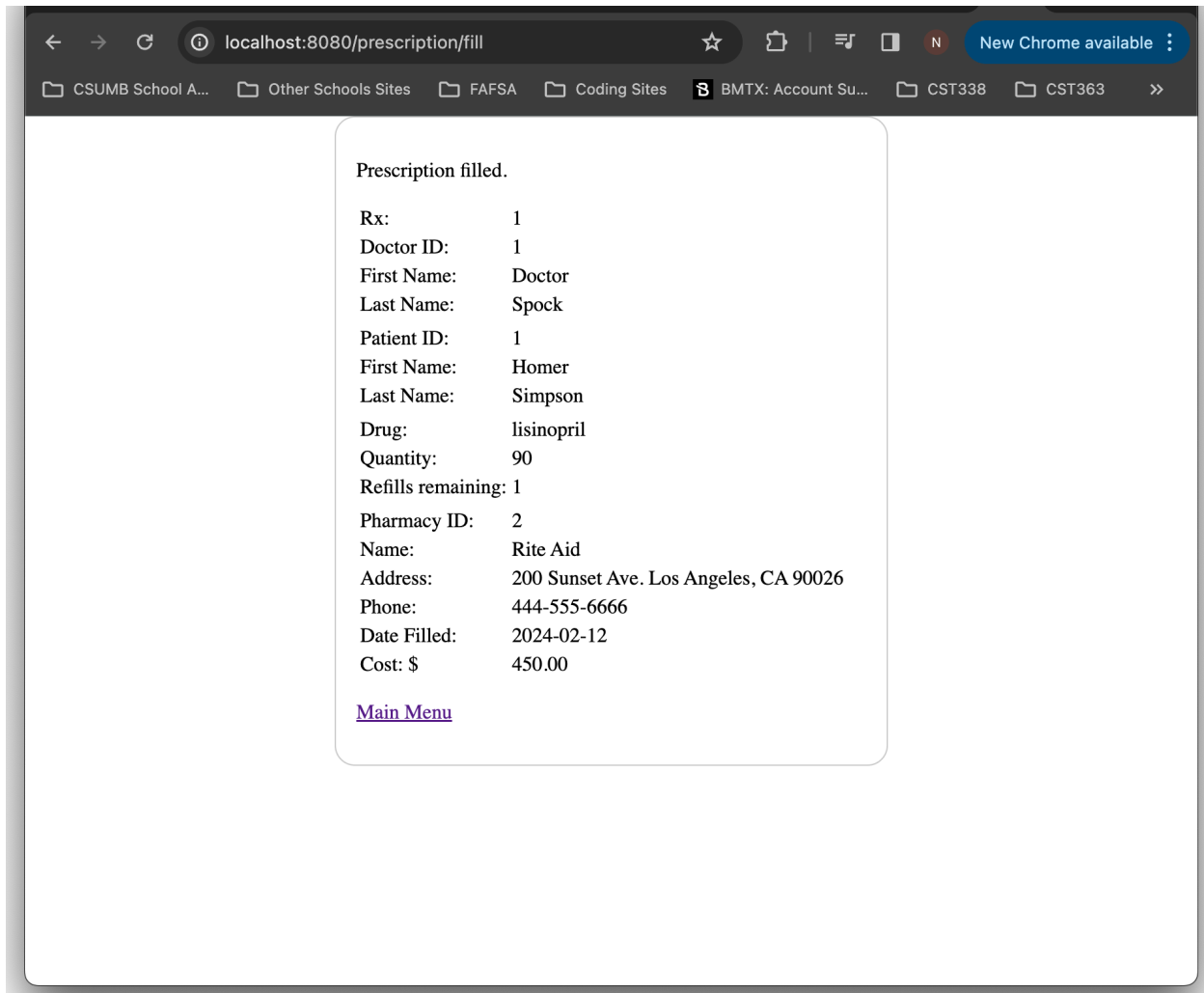
The screenshot shows a web browser window with the address bar displaying `localhost:8080/prescription/fill`. The browser's tab bar includes several tabs: `CSUMB School A...`, `Other Schools Sites`, `FAFSA`, `Coding Sites`, `BMTX: Account Su...`, `CST338`, and `CST363`. A notification for 'New Chrome available' is visible in the top right corner.

The main content area of the browser displays a form titled **Request Prescription to be filled.** Below the title, a message states 'Prescription not found.' The form contains the following fields:

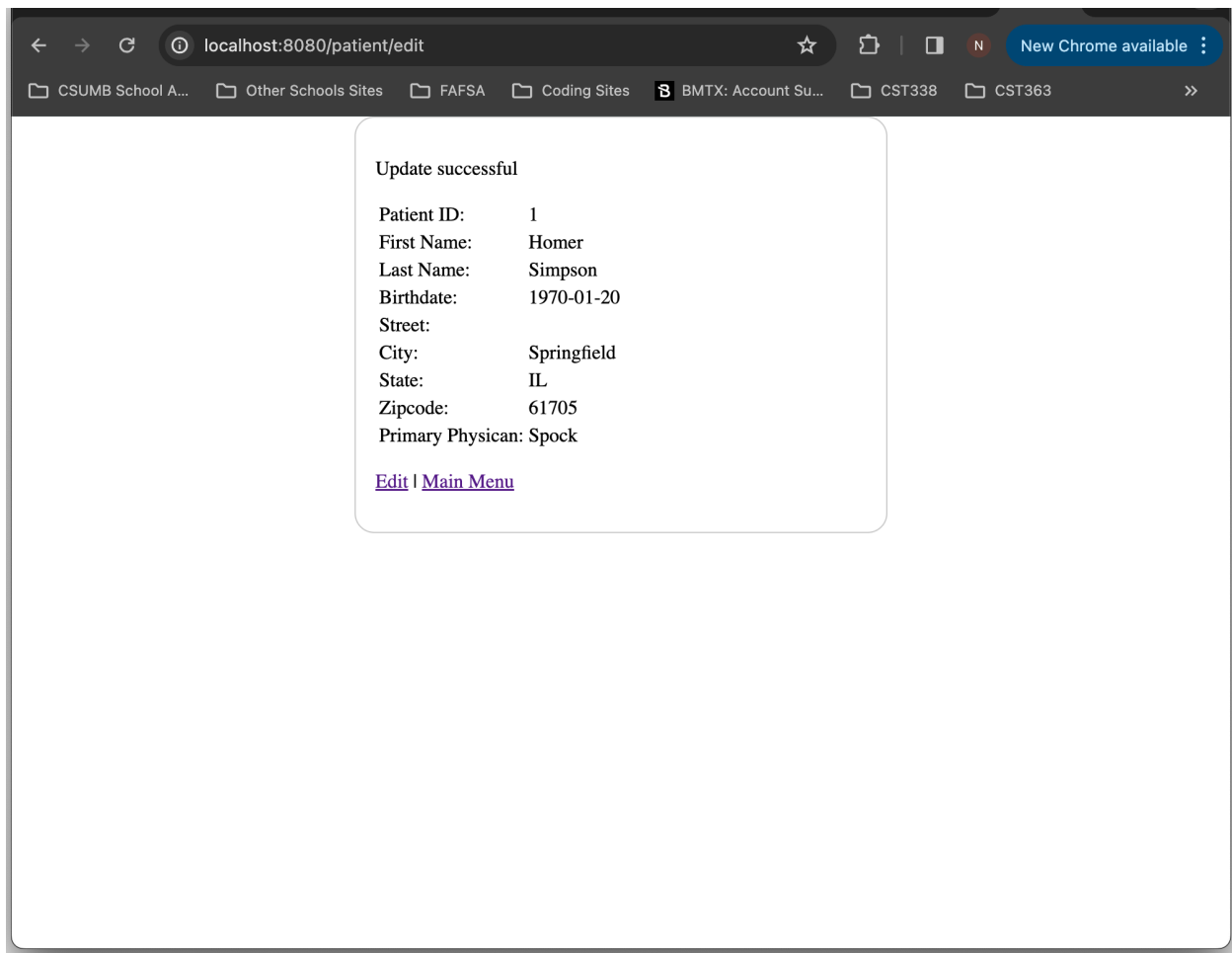
- Rx:** A text input field containing the value `2`.
- Patient Last Name:** A text input field containing the value `Simpson`.
- Pharmacy Name:** A text input field containing the value `Rite Aid`.
- Pharmacy Address:** A text input field containing the value `200 Sunset Ave. Los Angeles, CA`.

At the bottom of the form is a button labeled **Request Fill for Prescription**.

- Fill the prescription with success.



- Get the profile for patient “Simpson” and edit the patient record for “Simpson” and change city to Springfield and zip code to 61705. Show the web page of the successful update.



- Edit the patient record for “Simpson”. Attempt to change the doctor’s name to a doctor that does not exist. Show the error message and edit patient form.

localhost:8080/patient/edit

CSUMB School A... Other Schools Sites FAFSA Coding Sites BMTX: Account Su... CST338 CST363

Update Patient Profile

Doctor does not exist.

ID:

First Name:

Last Name:

BirthDate:

Street:

City:

State:

Zipcode:

Primary Physician
Name: